What's new in

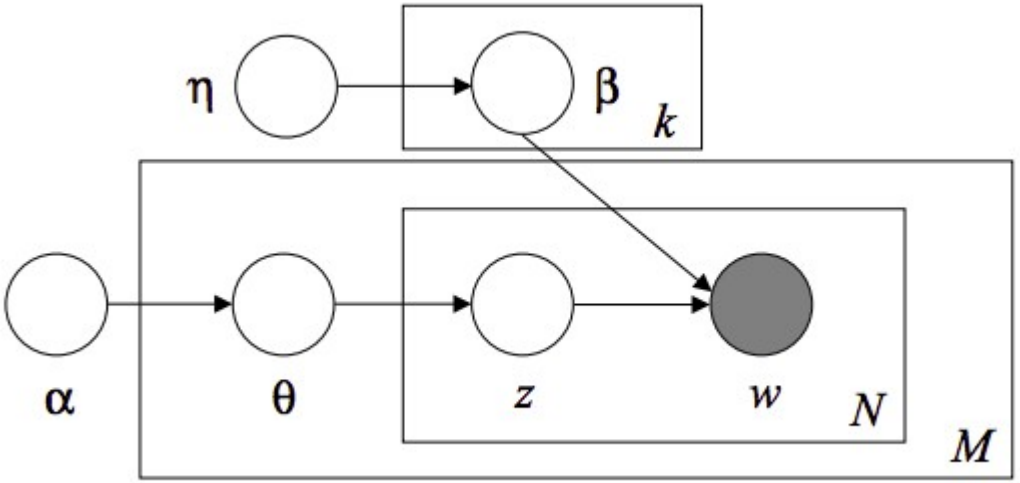
0.17

Andreas Mueller

NYU
Center For
Data Science

Latent Dirichlet Allocation

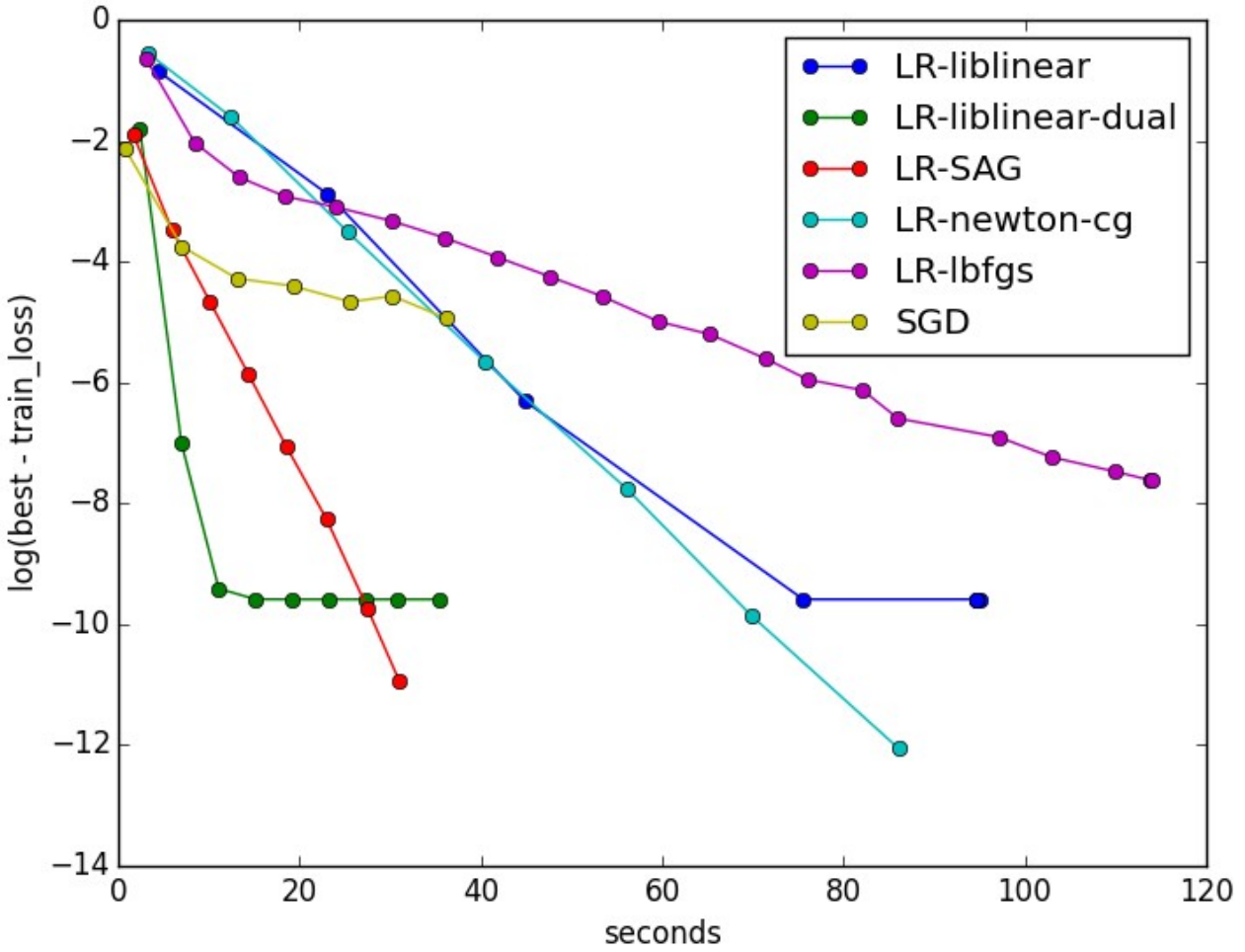
using online variational inference



Topic #0:
government people mr law gun state president states public use right rights national new control american security encryption health united
Topic #1:
drive card disk bit scsi use mac memory thanks pc does video hard speed apple problem used data monitor software
Topic #2:
said people armenian armenians turkish did saw went came women killed children turkey told dead didn left started greek war
Topic #3:
year good just time game car team years like think don got new play games ago did season better ll
Topic #4:
10 00 15 25 12 11 20 14 17 16 db 13 18 24 30 19 27 50 21 40
Topic #5:
windows window program version file dos use files available display server using application set edu motif package code ms software
Topic #6:
edu file space com information mail data send available program ftp email entry info list output nasa address anonymous internet
Topic #7:
ax max b8f g9v a86 pl 145 1d9 0t 34u 1t 3t giz bhj wm 2di 75u 2tm bxn 7ey
Topic #8:
god people jesus believe does say think israel christian true life jews did bible don just know world way church
Topic #9:
don know like just think ve want does use good people key time way make problem really work say need

By Chyi-Kwei Yau, based on code by Matt Hoffman

SAG for Logistic Regression and Ridge Regression



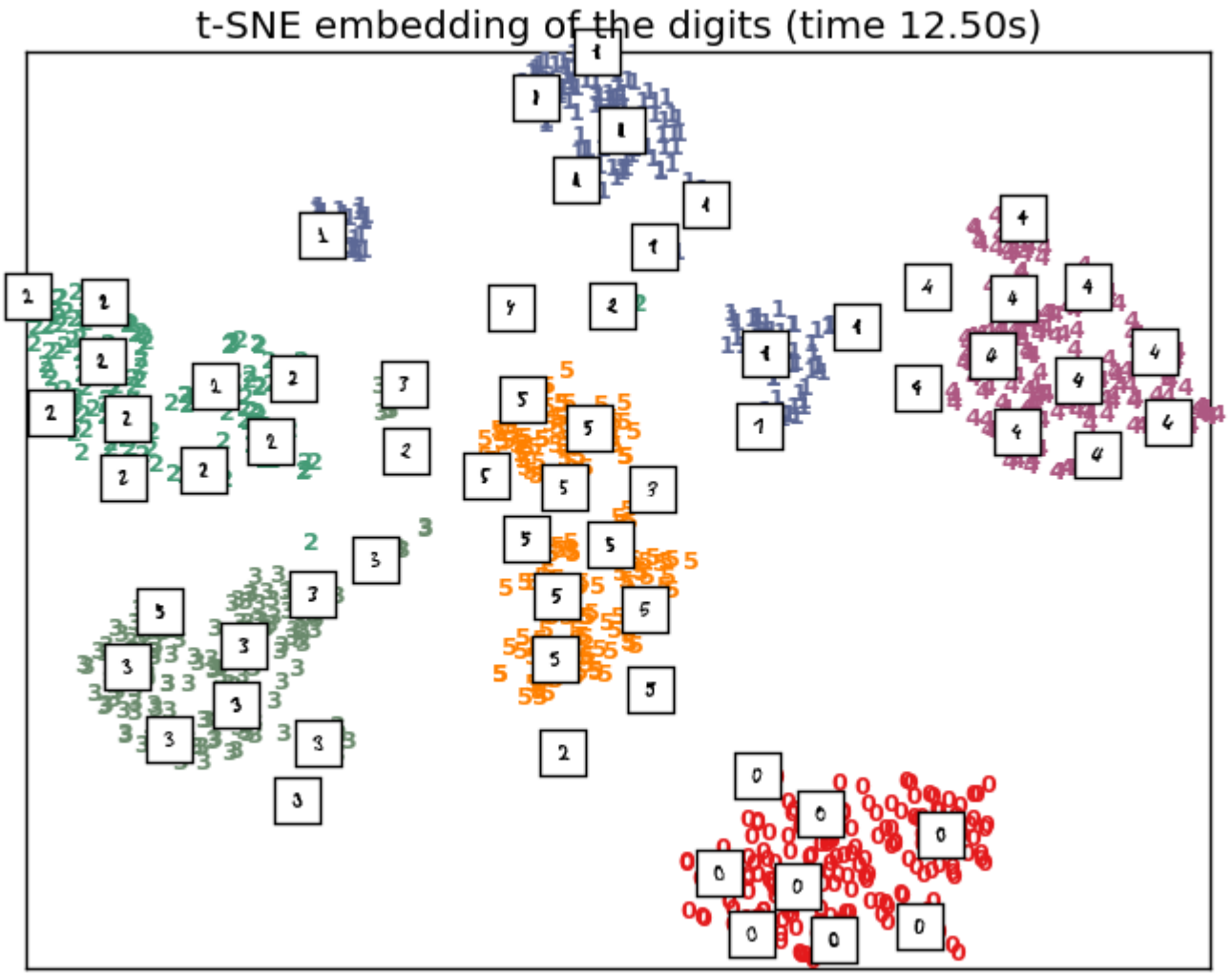
By Danny Sullivan and Tom Dupre la Tour

Coordinate Descent Solver for Non-Negative Matrix Factorization

Topics in NMF model:
Topic #0:
don people just like think know time good right ve make say want did really way new use going said
Topic #1:
windows file dos files window program use running using version ms problem server pc screen ftp run application os software
Topic #2:
god jesus bible christ faith believe christians christian heaven sin hell life church truth lord say belief does existence man
Topic #3:
geb dsl n3jxp chastity cadre shameful pitt intellect skepticism surrender gordon banks soon edu lyme blood weight patients medical probably
Topic #4:
key chip encryption clipper keys escrow government algorithm secure security encrypted public des nsa enforcement bit privacy law secret use
Topic #5:
drive scsi ide drives disk hard controller floppy hd cd mac boot rom cable internal tape bus seagate bios quantum
Topic #6:
game team games players year hockey season play win league teams nhl baseball player detroit toronto runs pitching best playoffs
Topic #7:
thanks mail does know advance hi info looking anybody address appreciated help email information send ftp post interested list appreciate
Topic #8:
card video monitor vga bus drivers cards color driver ram ati mode memory isa graphics vesa pc vlb diamond bit
Topic #9:
00 sale 50 shipping 20 10 price 15 new 25 30 dos offer condition 40 cover asking 75 interested 01

By Tom Dupre la Tour and Mathieu Blondel

Barnes-Hut Approximation for T-SNE manifold learning



FunctionTransformer

```
>>> import numpy as np
>>> from sklearn.preprocessing import FunctionTransformer
>>> transformer = FunctionTransformer(np.log1p)
>>> X = np.array([[0, 1], [2, 3]])
>>> transformer.transform(X)
array([[ 0.        ,  0.69314718],
       [ 1.09861229,  1.38629436]])
```

VotingClassifier

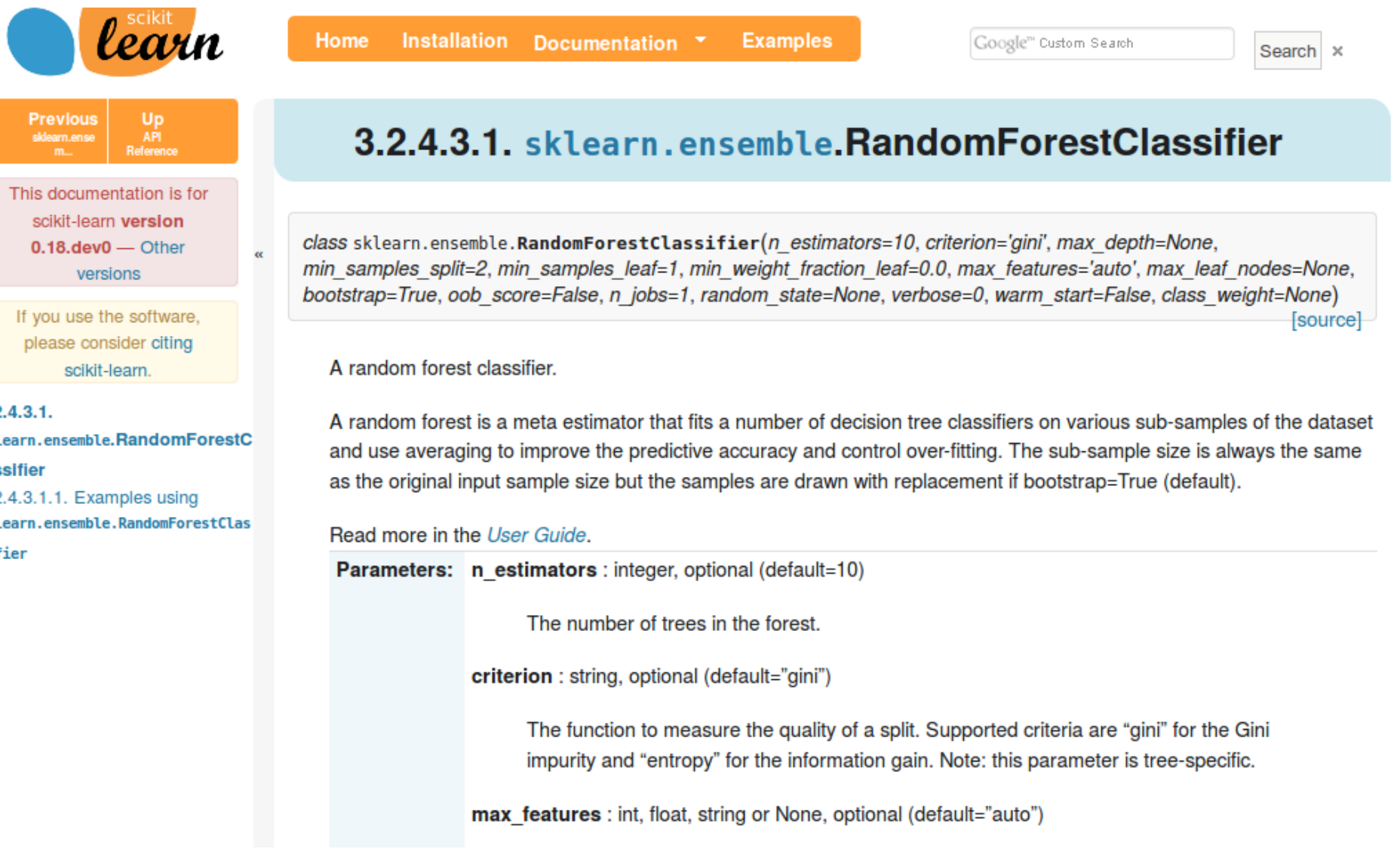
```
>>> clf1 = LogisticRegression(random_state=1)
>>> clf2 = RandomForestClassifier(random_state=1)
>>> clf3 = GaussianNB()

>>> eclf = VotingClassifier(estimators=[('lr', clf1), ('rf', clf2), ('gnb', clf3)], voting='har
d')
```

Scalers

- RobustScaler
- MaxAbsScaler

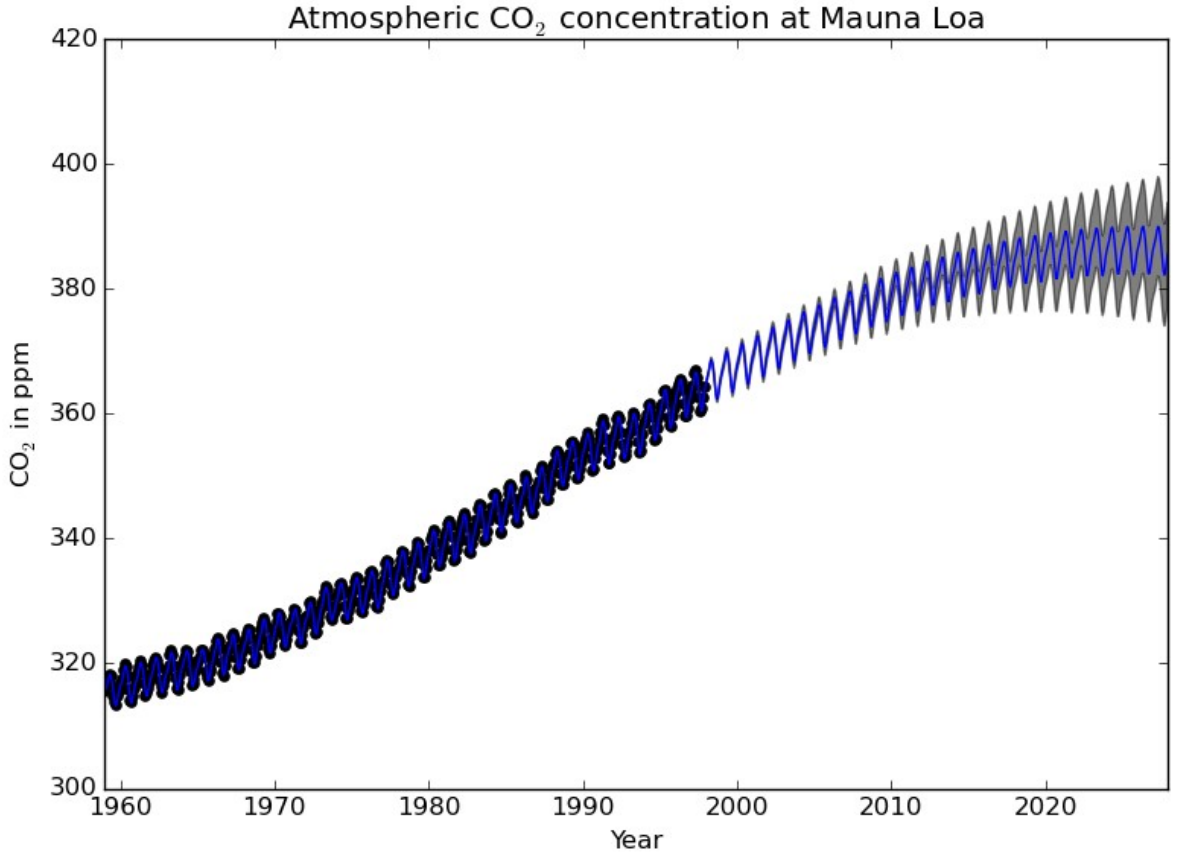
By Thomas Unterthiner.

Add Backlinks to Docs



What the future will bring (0.18)

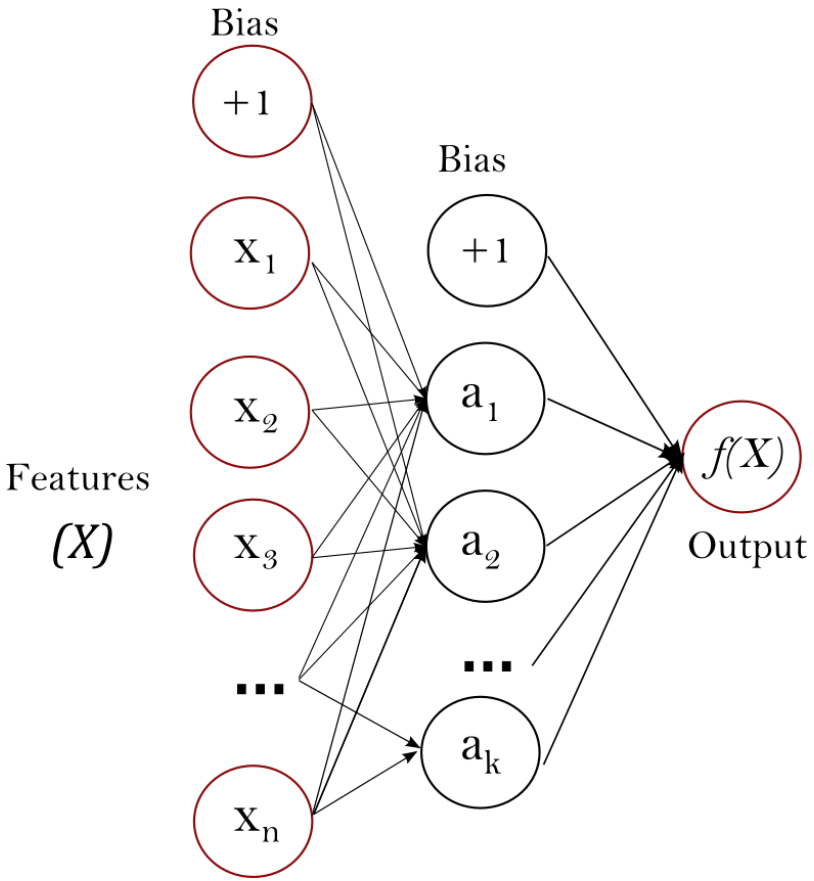
Gaussian Process Rewrite

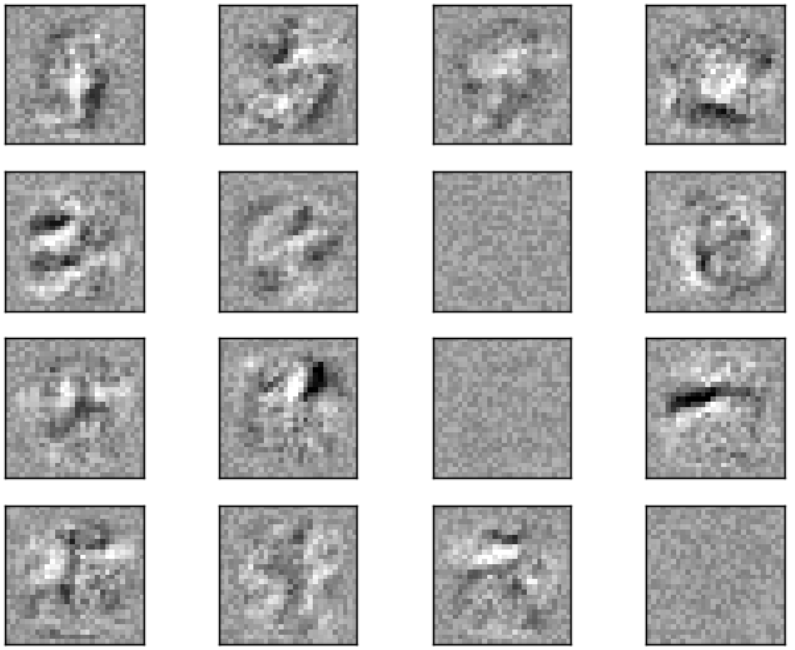


34.4**2 * RBF(length_scale=41.8)
+ 3.27**2 * RBF(length_scale=180)
    * ExpSineSquared(length_scale=1.44, periodicity=1)
+ 0.446**2 * RationalQuadratic(alpha=17.7, length_scale=0.957)
+ 0.197**2 * RBF(length_scale=0.138) + WhiteKernel(noise_level=0.0336)

By Jan Hendrik Metzen.

Neural Networks





By Jiyuan Qian and Issam Laradji

Improved Cross-Validation

current

```
>>> import numpy as np
>>> from sklearn.model_selection import KFold

>>> X = ["a", "b", "c", "d"]
>>> kf = KFold(n_folds=2)
>>> for train, test in kf.split(X):
...     print("%s %s" % (train, test))
[2 3] [0 1]
[0 1] [2 3]
```

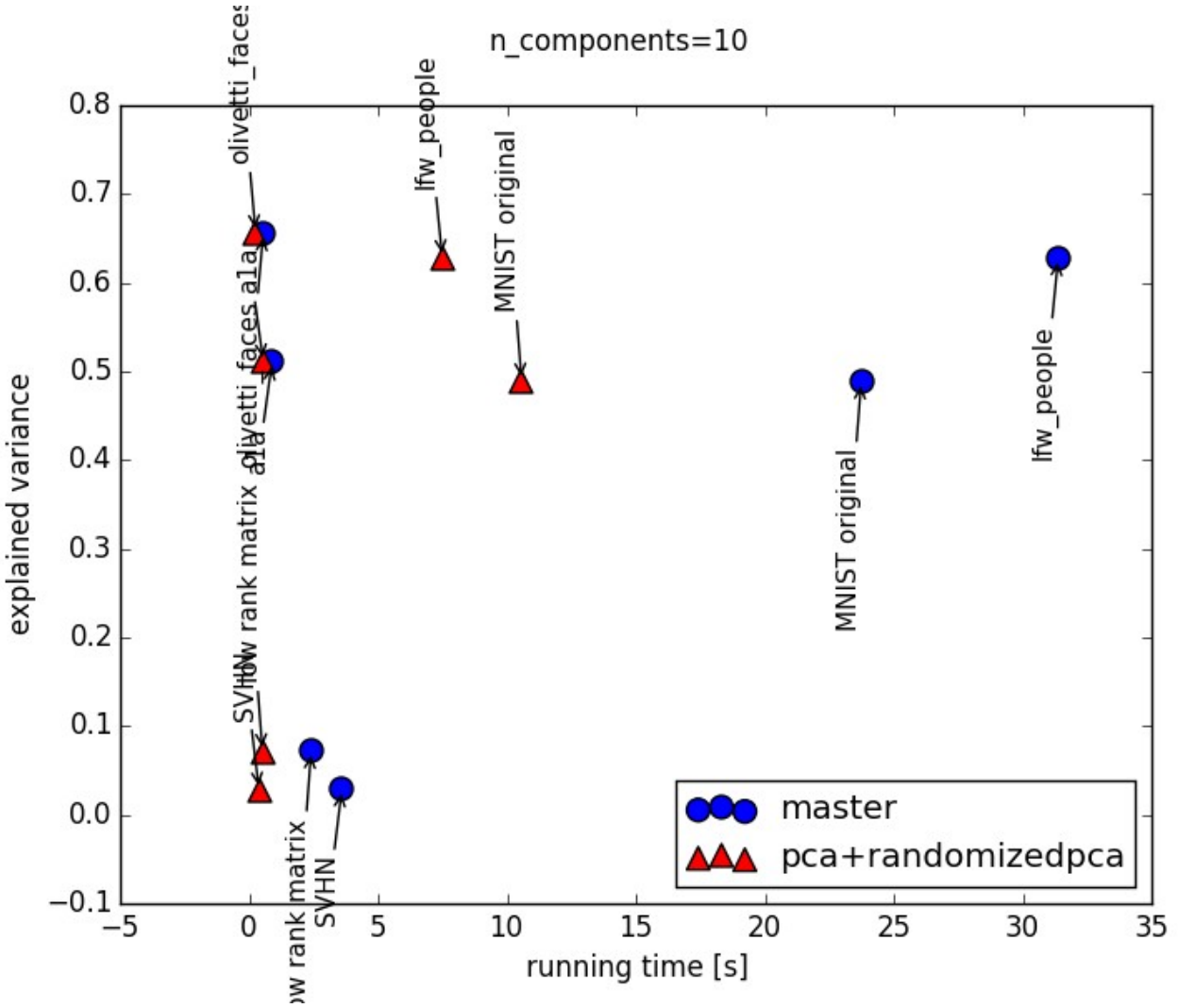
future

```
>>> import numpy as np
>>> from sklearn.cross_validation import KFold

>>> kf = KFold(4, n_folds=2)
>>> for train, test in kf:
...     print("%s %s" % (train, test))
[2 3] [0 1]
[0 1] [2 3]
```

```
gs = GridSearchCV(LinearSVC(random_state=0), param_grid={'C': [1, 10]},
                  cv=inner_cv)
cross_val_score(gs, X=X, y=y, labels=labels, cv=outer_cv,
                fit_params={'labels': labels})
```

By Ragav RV

Faster PCA



By Giorgio Patrini